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A new species of the millipede genus *Cryptocorypha* Attems, 1907, from Myanmar (Diplopoda: Polydesmida: Pyrgodesmidae)

Новый вид диплопод рода *Cryptocorypha* Attems, 1907, из Мьянмы (Diplopoda: Polydesmida: Pyrgodesmidae)

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КЛЮЧЕВЫЕ СЛОВА: Diplopoda, Pyrgodesmidae, *Cryptocorypha*, новый вид, Мьянма.

ABSTRACT. A new species of the rather large, basically tropical/subtropical Asian genus *Cryptocorypha* is described from western Myanmar: *C. perplexa* sp.n. This is the 13th congener, also being the first to be reported from Myanmar. It differs from all sufficiently well described species of the genus in having 20 body segments in the ♂, combined with apparently the most complex gonopod structure.

РЕЗЮМЕ. С запада Мьянмы описан новый вид довольно большого, в основном тропического или субтропического азиатского рода *Cryptocorypha*: *C. perplexa* sp.n. Это 13-й вид в составе рода и первый, отмеченный в этой стране. Он отличается от всех достаточно подробно описанных видов рода наличием 20 сегментов тела у ♂ в сочетании с, очевидно, самым сложным строением гоноподов.

Introduction

The basically pantropical family Pyrgodesmidae is amongst the largest in the class Diplopoda, at the present counting almost 400 species from nearly 180 genera alone [e.g. Hoffman, 1980; Jorgensen, Sierwald, 2010; updated]. The recently reviewed genus *Cryptocorypha* Attems, 1907, currently encompasses 12 species [Golovatch et al., 2011, 2013, and literature therein]: *C. stylopus* Attems, 1907 (the type species) and *C. leia* Chamberlin, 1945, both from Java, Indonesia; *C. tobana* Chamberlin, 1945, from Sumatra, Indonesia; *C. ornata* (Attems, 1938), nearly pantropical, especially characteristic of remote archipelagos; *C. chernovi* Golovatch, Geoffroy et VandenSpiegel, 2013, from Vanuatu, Melanesia, southwestern Pacific; *C. hoffmani* Golovatch, Semenyuk, VandenSpiegel et Anichkin, 2011, from southern Vietnam; *C. areata* (Carl, 1932) and *C. tuberculata* (Carl, 1932), both from southern India; *C. kandyana* (Carl, 1932), from Sri Lanka; *C. spinicoronata* (Zhang et Li, 1981), from southern China; as well as *C. japonica* (Miyosi, 1957) and *C. kumamotensis* (Murakami, 1966), from southern Honshu and Kyushu, Japan, respectively.

Because some of the species are too poorly known, no key to *Cryptocorypha* spp. can be attempted yet [Golovatch et al., 2011, 2013]. Thus, we still do not know even the number of body segments in the ♂ of both *C. tobana* and *C. leia*. Most of the species of *Cryptocorypha* show 20 segments in adult ♂♂ and ♀♀, but in *C. stylopus* and *C. chernovi* the ♂ has 19 segments, as opposed to 20 in the ♀.

The present note puts on record a new congener from Myanmar, the first to be described from that country.

Material and methods

All material was collected in 2014 in western Myanmar by Peter Jäger and Jochen Martens. The holotype and two paratypes are housed in the Museum und Forschungsinstitut Senckenberg (SMF), Frankfurt a.M., Germany, while one paratype is retained for the collection of the Zoological Museum, State University of Moscow (ZMUM), Moscow, Russia, as indicated below.

Scanning electron micrographs (SEM) were taken using a JEOL JSM-6480LV scanning electron microscope. After examination, SEM material was removed from the stub and returned to alcohol, now in SMF.

Description

Cryptocorypha perplexa **sp.n.**
Figs 1–4.

HOLOTYPE ♂ (SMF), Myanmar, southern Chin State, above Kampetlet, below Mountain Oasis Resort, 1585 m a.s.l., N 21°11′ 43.6″, E 94°02′1.1″, secondary tropical forest along stream, 10.V. 2014, leg. P. Jäger & J. Martens.

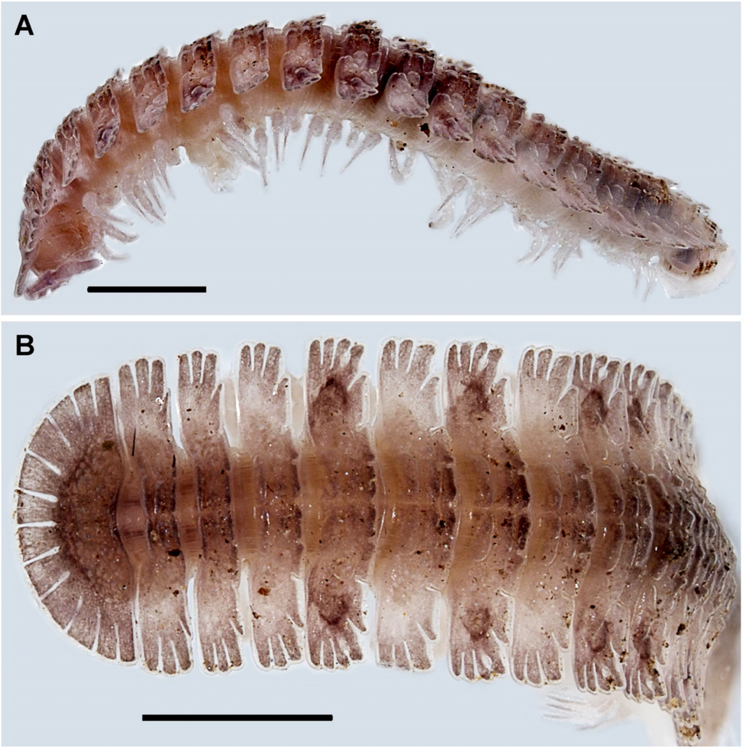
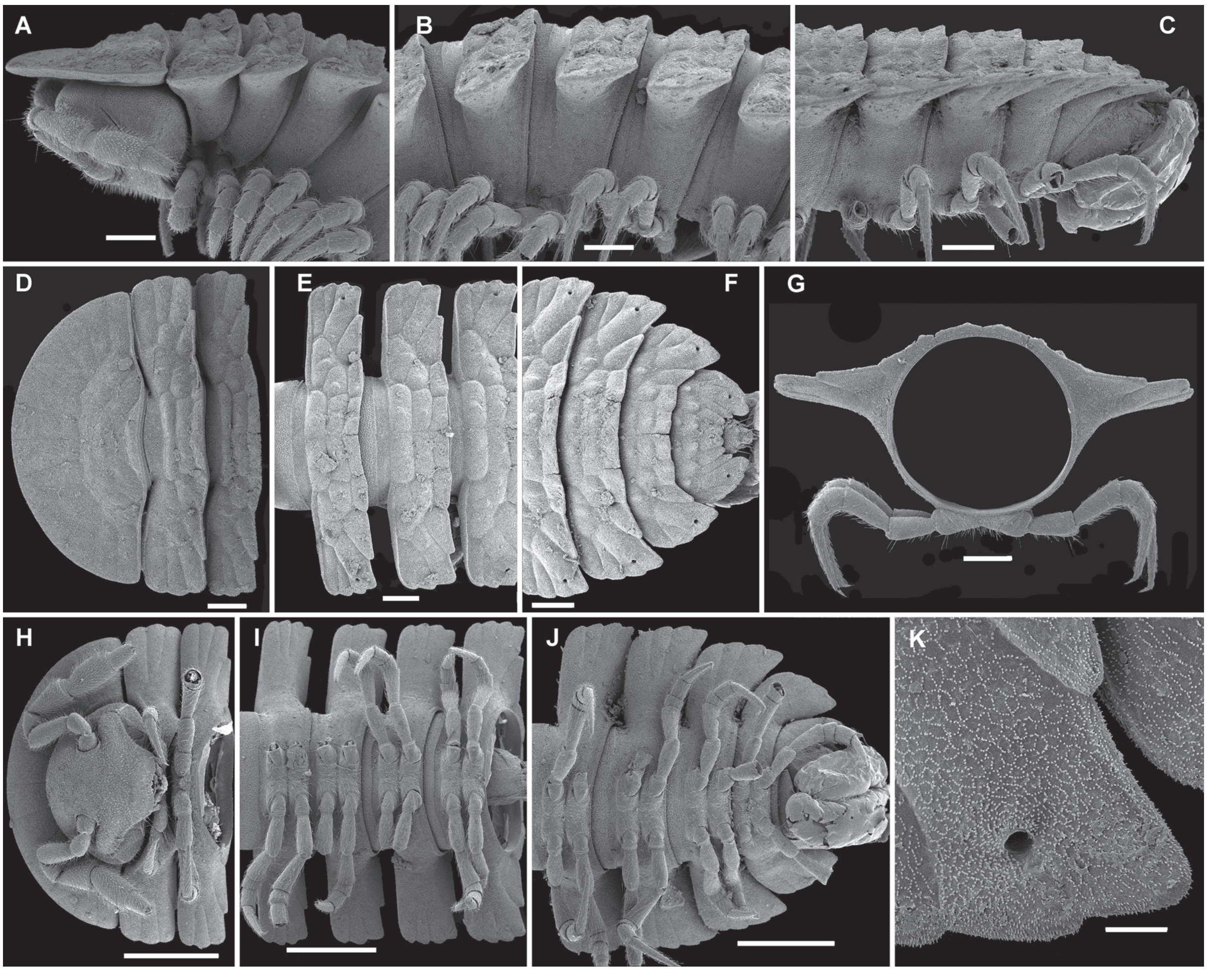


Fig. 1. *Cryptocorypha perplexa* sp.n., ♂ paratype. A — habitus, lateral view; B — anterior part of body, dorsal view. Scale bars: 1.0 mm.

Рис. 1. *Cryptocorypha perplexa* sp.n., паратип ♂. A — внешний вид, сбоку; B — передняя часть тела, сверху. Масштаб 1,0 мм.

Fig. 2. *Cryptocorypha perplexa* sp.n., ♂ paratype. A, D, H — anterior part of body, lateral, dorsal and ventral views, respectively; B, E, I — midbody segments, lateral, dorsal and ventral views, respectively; C, F, J — caudal part of body, lateral, dorsal and ventral views, respectively; G — cross-section of a midbody segment, caudal view; K — poriferous midbody paratergum, dorsal view. Scale bars: 0.5 (H–J), 0.2 (A–G) & 0.05 mm (K).

Рис. 2. *Cryptocorypha perplexa* sp.n., паратип ♂. A, D, H — передняя часть тела, соответственно сбоку, сверху и снизу; B, E, I — среднетуловищные сегменты, соответственно сбоку, сверху и снизу; C, F, J — задняя часть тела, соответственно сбоку, сверху и снизу; K — несущий озопору среднетуловищный паратергит, сверху. Масштаб: 0,5 (H–J), 0,2 (A–G) и 0,05 мм (K).



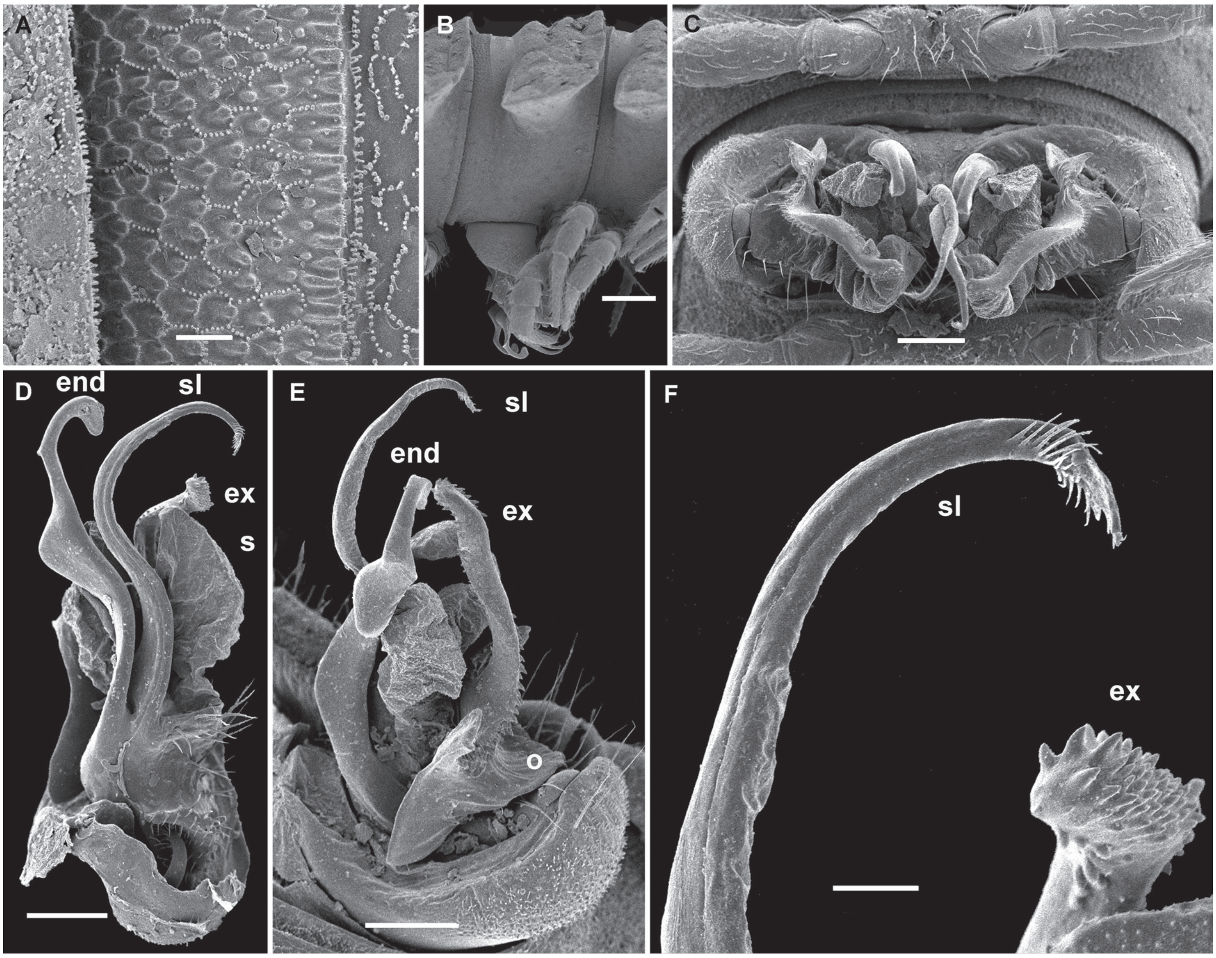


Fig. 3. *Cryptocorypha perplexa* sp.n., ♂ paratype. A — tegument texture (from left to right, limbus, pro- and metatergum); B, C — segment 7 with gonopods in situ, lateral and ventral views, respectively; D — right gonopod, mesal view; E — left gonopod, lateral view; F — tip of right gonopod, mesal view. Scale bars: 0.2 (B), 0.1 (C–E) & 0.02 mm (A, F). Designations in text.

Рис. 3. *Cryptocorypha perplexa* sp.n., паратип ♂. A — текстура тегумента (слева направо лимбус, про- и метатергит); B, C — сегмент 7, соответственно сбоку и снизу; D — правый гонопод, изнутри; E — левый гонопод, сбоку; F — вершина правого гонопода, изнутри. Масштаб: 0,2 (B), 0,1 (C–E) и 0,02 мм (A, F). Обозначения в тексте.

PARATYPES: 1 ♂ (SEM), 1 subadult ♀ (19 segments) (SMF), 1 ♂ (ZMUM ρ2563), same data, together with holotype.

NAME. To emphasize perhaps the most complex gonopod structure observed among the *Cryptocorypha* species.

DIAGNOSIS. Differs from all sufficiently well documented congeners by the presence of 20 body segments in the ♂, coupled with a well-developed dorsal, distotibial, setigerous stump on the last ♂ legs and, especially, obviously the most complex gonopod structure observed among the known *Cryptocorypha* species.

DESCRIPTION. Length ca 10 (♂ paratypes) or 11.0 mm (holotype), width of midbody segments 1.0 and 1.9 mm (♂ paratypes) or 1.1 and 2.0 mm (holotype) on pro- and metazonae, respectively. Coloration in alcohol from light brown to nearly pallid (Fig. 1).

Body with 20 segments, paraterga very broad (Figs 1, 2A–J). In width, head << collum < segment 3 = 4 < 2 < 5 = 14, thereafter body tapering towards telson (Fig. 2F, J). Head subovoid, slightly transverse, densely setose in clypeolabral region, smooth also above antennal sockets. Interantennal isthmus nearly twice as large as diameter of antennal socket or length of antennomere 1. In length, antennomere 1 < 2 = 4 < 7 << 3 = 5 < 6; antennomere 6 largest, 5th and 6th each with a loose group of apicodorsal sensilla (Fig. 2A, H).

Collum flabellate (Figs 1, 2A, D, H), completely covering head from above; fore margin regularly rounded, with 6+6 equal, evident, only very faintly incised lobulations, but with very long radii; middle and caudal parts with three transverse, arched, rather faint rows of low bosses, each of these surmounted by a minute knob (= insertion point of an abraded seta). Paraterga set at about upper 1/3 (♂) to 1/2 (♀) of body height, largely subhorizontal (♂) (Figs 1A, 2A–C, G, 3B) to moderately sloping down (♀). Tegument encrusted with a microspiculate ceratequment, dull, beset with microvilli arranged in a polygonal alveolate pattern (Figs 2K, 3A). Prozonae and stricture between pro- and metazonae very delicately alveolate (Figs 2E,

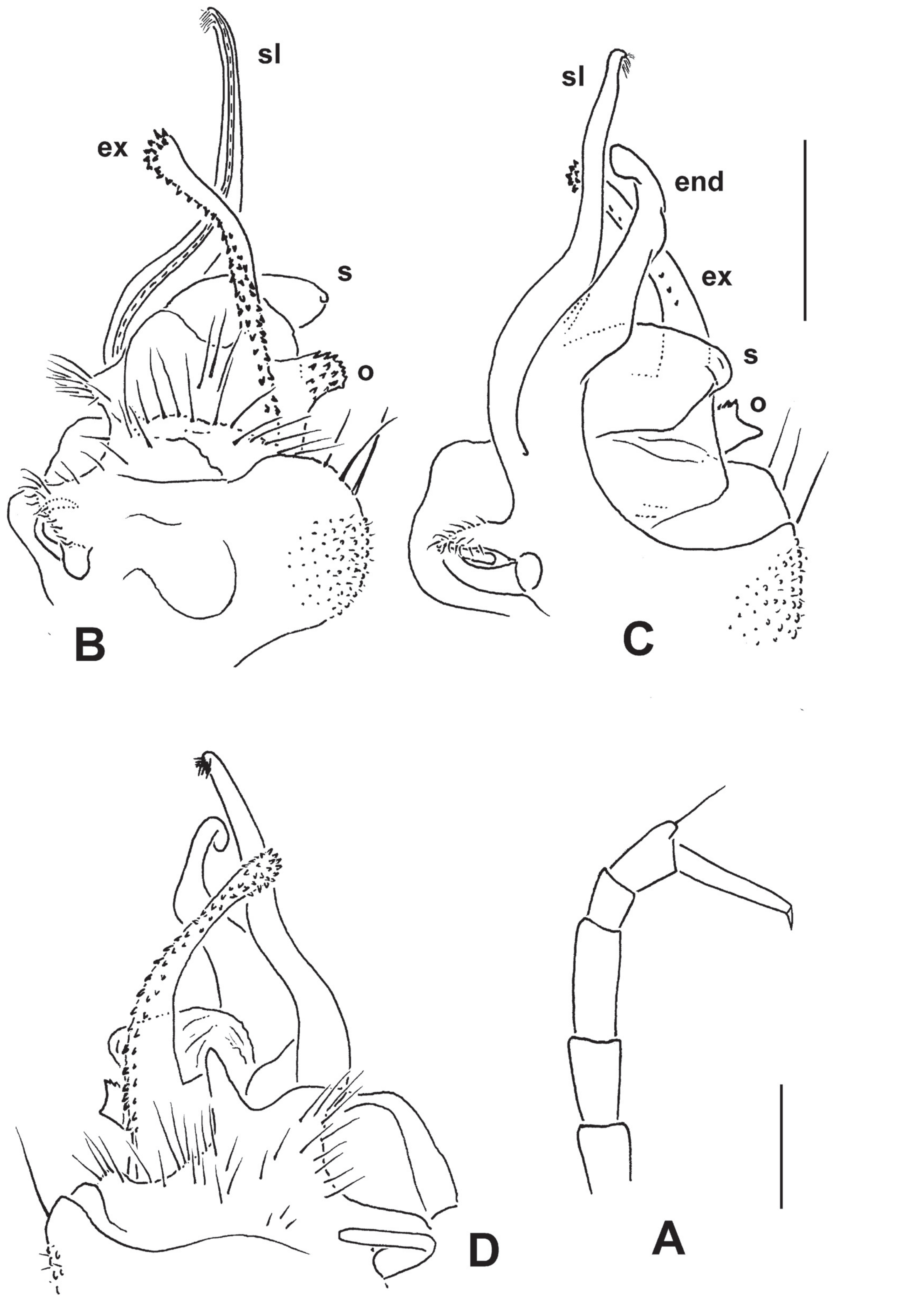


Fig. 4. *Cryptocorypha perplexa* sp.n., ♂ paratype. A — last leg, lateral view; B — right gonopod, lateral view (endomere branch broken off); C, D — left gonopod, mesal and lateral views, respectively. Scale bars: 0.2 mm. Designations in text.

Рис. 4. *Cryptocorypha perplexa* sp.n., паратип ♂. A — последняя нога, сбоку; B — правый гонопод, сбоку (эндомер ветви обломан); C, D — левый гонопод, соответственно изнутри и сбоку. Масштаб 0,2 мм. Обозначения в тексте.

3A, B). Metaterga with non-differentiated tuberculations, like much of collum with three transverse and distinct rows of usually transversely oblong, polygonal to rounded, low bosses, each of these often also surmounted by a minute knob (Figs 1, 2A–G). Tergal setae largely abraded, retained ones inconspicuous, very short. Postcollum paraterga thin and rather indistinctly lobulated laterally (Figs 1, 2A–F, H–K, 3B), with three lobulations in all poreless segments, with four lobulations in all pore-bearing ones, all also delimited by very long radii both dorsally and ventrally; anterior marginals absent, but two caudal marginals evident. Pore formula normal: 5, 7, 9, 10, 12, 13, 15–19, all ozopores being very small, round, discernible dorsally at base of 3rd lobulation (Fig. 2D–F). Limbus microspiculate (Fig. 3A). Epiproct readily visible from above, not hidden under segment 19 (Figs 2F). Hypoproct subtriangular, caudal edge with 1+1 strong, widely separated setae on knobs (Fig. 2J). Sterna rather wide, about as broad as coxa. Legs (Fig. 2L) rather short, but slender, slightly enlarged in both sexes, tarsi longest, last tibia in adult ♂ with an evident, setigerous, distodorsal tubercle (Figs 2J, 4A).

Gonopods (Figs 3C–F, 4B–D) taking up most of ventral surface of segment 7, almost reaching bases of paraterga from below. Coxae voluminous, but rather low, transverse, each with 2–3 strong setae, microgranulate and microsetose on lateral surface; cannulae as usual; gonocoel modest, leaving most of telopodites exposed; telopodites extremely complex, directed mesad, partly crossing each other medially. Each telopodite represented by a very stout, strongly setose, prefemoral part which is much shorter than a pentapartite acropodite. Solenomere (**sl**) mesal, longest, slender, rather simple, moderately curved forward, with a group of fine, short, setiform filaments at tip, branching off parabasally from both a prominent, membranous, central, sac-shaped structure (**s**) and an only slightly shorter, also slender and modestly curved endomere branch (**end**). Exomere (**ex**) a lateral, strong, slender, suberect branch about as high as **end**, beset with tiny, but strong spinicles nearly all over and carrying a short, bifid, stump-shaped outgrowth (**o**) caudally at base. Seminal groove terminating apically on **sl**.

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